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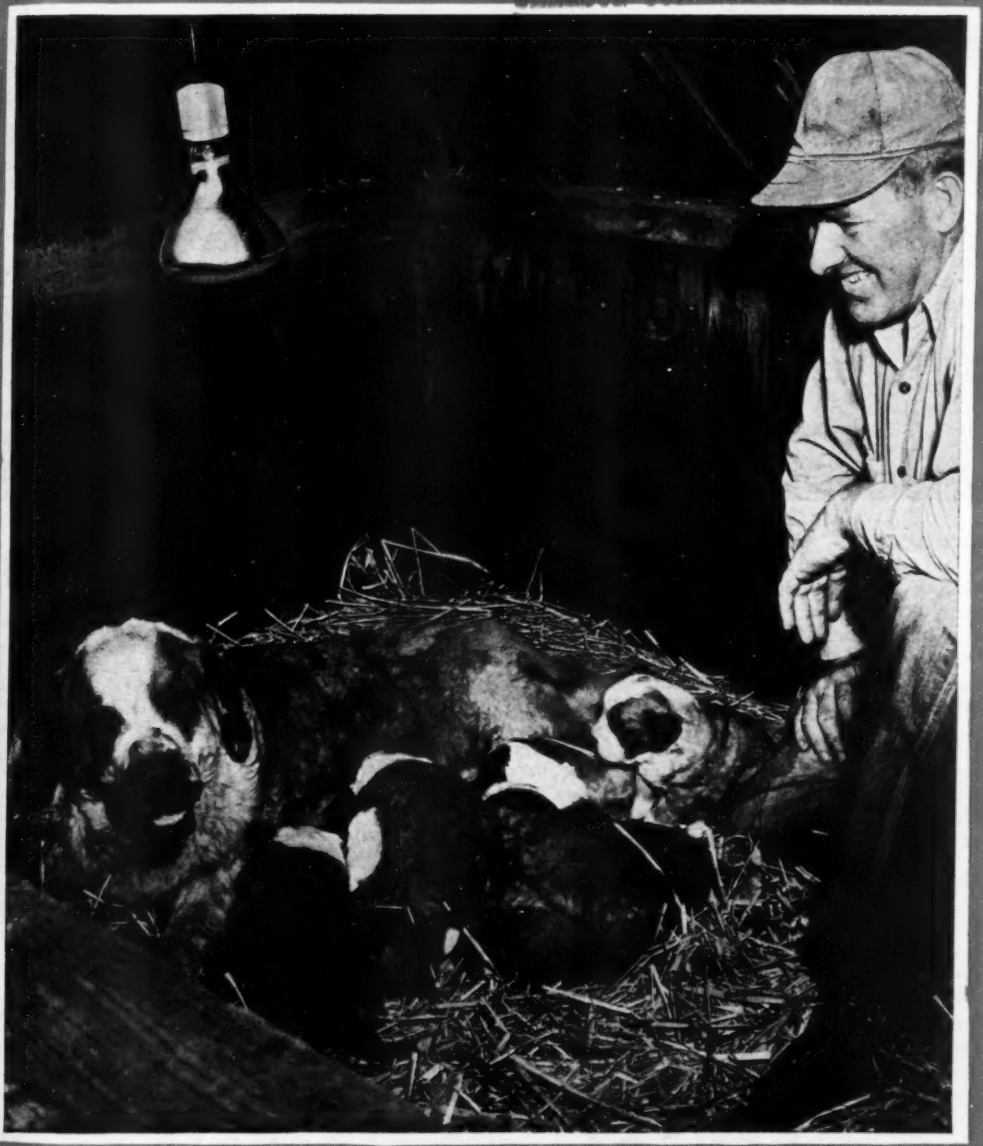
ELECTRICITY ON THE FARM *Magazine*

FEBRUARY, 1955

Hens Respond to Foot-Candles.
Electric Route for Ear Corn . .
Portable Cooking Appliances . .
Plan for Positive Ventilation
Radiant Slabs for Brooding . . .

——28th Year——



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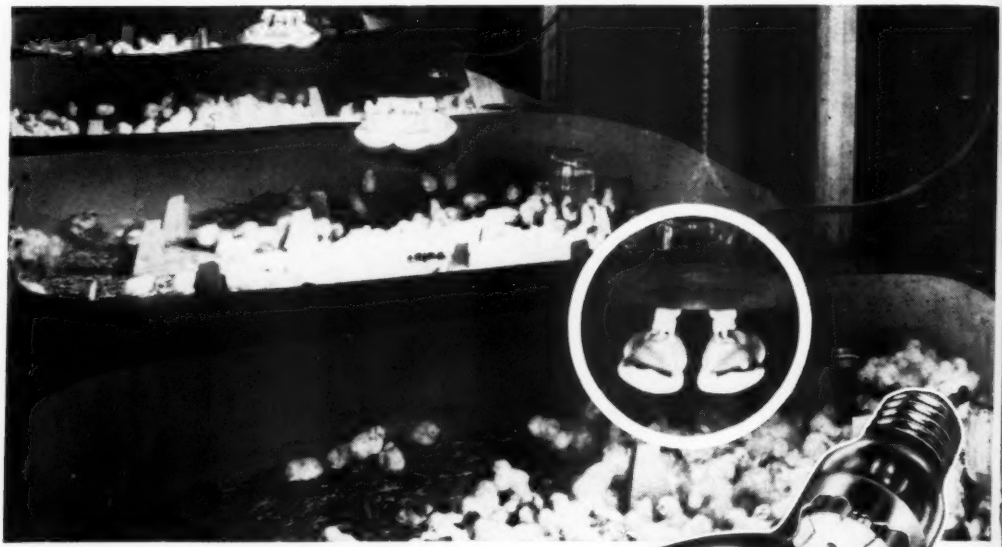
XUM

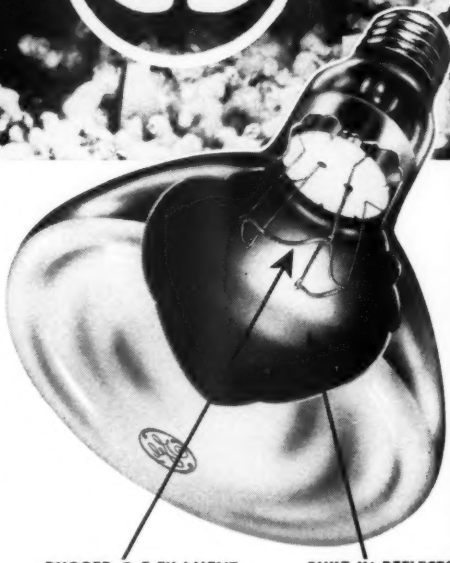
G-E INFRARED LAMPS raise healthier chicks with less work, less cost



HEALTHIER CHICKS—Energy from General Electric Infrared Lamps passes through the air without heating it. It turns into heat only when it reaches your chicks. This eliminates the danger of overcrowding because chicks seek out the spots that are best for their individual needs. They get all the heat they want but feather faster to compensate for the lower air temperature.

LESS WORK—Litter, too, absorbs heat from General Electric Infrared Lamps. Stays dry, makes the pen easier to clean. There are no brooders to move. Chicks are always in sight for checking. It you want more or less heat, all you do is lower or raise the lamps.

LESS COST—A 250-watt General Electric Infrared Lamp provides warmth for 75 to 100 chicks. The Hardglass model (won't crack when splashed with water) costs only $2.95. The standard 250-watt G-E Infrared Lamp costs $1.10. These lamps are very economical to install. And the cost of electricity is usually lower than fuel costs for other brooding methods. Stop in at your feed or hardware store and get some General Electric infrared lamps today.


RUGGED G-E FILAMENT WITHSTANDS HARD USE, GIVES DEPENDABLE, LONG LIFE
BUILT-IN REFLECTOR POLISHED TO A MIRROR FINISH STAYS BRIGHT, CLEAN FOR LIFE

FREE BOOKLET! To get your copy of General Electric's 8-page booklet "Infrared Chick Brooding", write to General Electric, Dept. 166-EF-2, Nela Park, Cleveland 12, Ohio.

GENERAL ELECTRIC

Editor's Chat

VENTILATION

Next to just plain everyday breathing, which none of us would willingly avoid, there is probably no easier, cheaper way to move air around than with an electric fan. This is because the construction, installation and operation of a fan is simple and inexpensive and the repair and maintenance almost nil. Yet—much as people, animals and birds need fresh air, and regardless of the fact that air can carry a heavy load of moisture, many of us still put up with poor ventilation and dampness in the home, dairy and hen house. This is no longer necessary or even good sense because the manufacturers and agricultural engineers and thousands of farmers and home owners have proven the value of electric ventilation. Even the cows and chickens have added their testimony in the form of better health and production.

FARM WORKSHOP

Some of us are old enough to recall the old village or crossroads blacksmith shop and how we would select a rainy day to take the teams in to be shod and visit with the neighbors likewise minded while waiting for the shoeing to be done. The blacksmith shop is gone and only an occasional specimen stands (in slow decay) as a reminder of those days that used to be—A sad monument to a skill that never got the full measure of recognition it deserved.

Others can recall, and in fact may still enjoy happy hours and perhaps some neighborhood visiting at the garage, the local machine shop, or even the shop on your own farm. In any case, the present rapid pace at which we live is discouraging to much visiting anywhere. We do go through life too fast to get the most enjoyment out of it, and maybe more hours spent around a shop or just visiting in one would add pleasure or even more years to our life. Be that as it may, it is a fact that a good farm shop can be a comfortable place of refuge, a good place to visit and even a place where you may get a lot of useful work done and save money on repairs.

It is quite likely that all the men who read this already have at least a shop of some sort, and even the women have a few small tools tucked away for emergency use. But none of us ever get just the kind of shop we would like to have and of course no man ever has all the tools he would like.

Maybe this season of the year is as good a time as you will get to plan a better shop, and clean up and sharpen what tools and equipment you do have. It's also a good time to shop around for more of the modern electrical tools that make shop work so pleasant and so much easier than doing things by manpower.

GUTTER CLEANERS

As long as men keep cows, and no one dares predict when this laudible practice may cease, there will remain the dual problem of taking large quantities of bulky food to the front of them and cleaning up behind them. Inasmuch as this operation is conducted at the barn and twice a day every day of the year, it offers opportunity to use automatic, electric power that is not practical on jobs out in the field or where the location is frequently changed. Since manpower has gone up and continues to rise as electrical power becomes cheaper it is one logical place to change from man to motor and save money.

FOR FREE

An index covering all the subjects published in our 1954 issues. Many of our readers keep all of their back copies. They make a handy reference. With a copy of the index you can find the subject in which you are interested quickly. If you would like a copy, simply write us a card requesting it.

Jim Ridout

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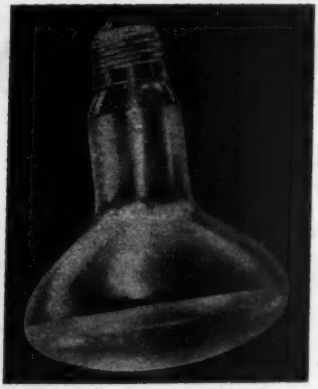


Hens Respond to Foot-Candles

R30 Lamp Proves Popular in New Jersey

By M. O. WHITHED

A review of poultry-house lighting in Southern New Jersey 2 years ago showed that there were as many ideas about the subject as there were farmers. One thing, however, did seem definite—all lighting systems were based on a bulletin published by Cornell University back in 1939.

Since then, as you can imagine, many changes have taken place. The recommended reflectors had frequently been thrown away. This allowed much of the light produced by the bulb to be absorbed in the ceiling, which did no one any good. In many houses larger floor areas were being illuminated by the same light that, back in 1939, was recommended for use on floor areas of 200 square feet. All of this lowered the level of light on the floor and roosting area, even below that of 1939.

What can be gained by good lighting in poultry houses and other farm buildings? Increased production and safer working conditions are immediate benefits. In many poultry houses, these can be had for only a few pennies simply by installing 75 watt R30 flood lamps. John Lobherr of Egg Harbor, New Jersey, is one of the many farmers who has done this. He operates an average size poultry farm and his eggs are sold to local buyers. During early spring, he hatches many baby chicks for sale as well as for restocking his own flock.

In one of Mr. Lobherr's coops there were six pens with 284 birds in each. These pens were lighted by four 50 watt inside frosted bulbs with no reflectors. It was decided to take three of these pens and equip them with 75 watt R30 flood lamps, leaving the other three pens as they were.

It was not many days before the birds in the pens equipped with the R30 bulbs started showing an increase in production. By the end of the 1953-1954 lighting season, a 3% increase in egg production in the pens equipped with the R30 lamp, as compared with the pens with the 50 watt lamps, had been realized. This 3% increase in egg production amounted to about $9.35 more per month per pen, based upon egg prices current at that time. This extra profit in egg production was realized for a 38 cent increase in the monthly electric bill.

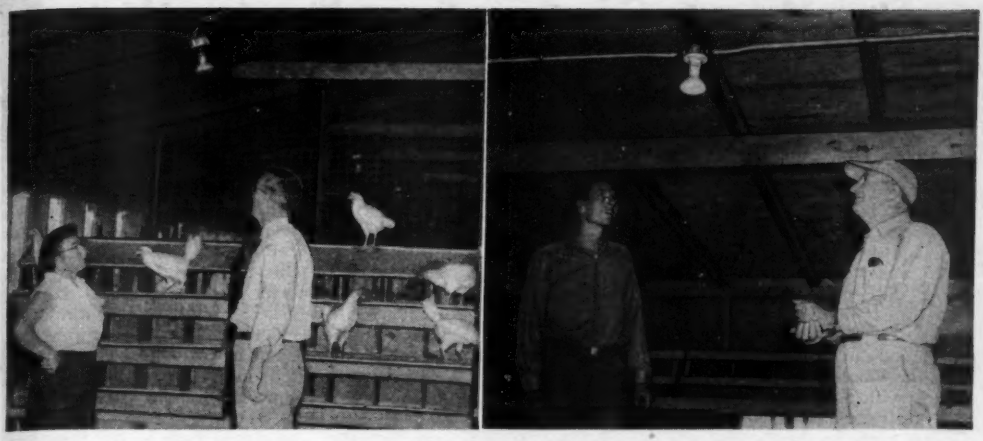
There are many more poultry men who are sold on the new lighting. Today some 10,000 such bulbs are being used in Southern New Jersey. Let's see why the R30 lamps are so popular.

First, this lamp has a built-in reflector. This puts the light down on the feeding, watering, and perch areas, thereby building up the illumination level to a point where the birds can feed and water with ease. An illumination level of 3 to 5 foot-candles seems to be giving the best results. No light is wasted on the ceiling.

Second, these lamps have approximately 2,000 burning hours which is almost 3 times the life of the old bulbs. This means less maintenance and less chance

John Lobherr of Egg Harbor, New Jersey, placing one of his R30 lamps in a socket in his poultry house.

Installation of R30 lamps in a poultry house owned and operated by Morris Kaufman, Janvier, New Jersey.



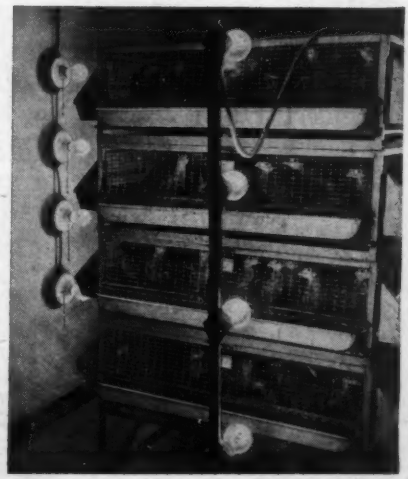
Left: Miss E. Troup, poultry farmer of Cape May Court House, New Jersey, and Mr. Eaton, Rural Representative of the Atlantic City Electric Company discussing the results obtained so far with R30 75 watt flood lamps in her poultry houses. **Right:** Herman Demme and son Skip discussing recent installation of R30 lamps at Dembro Poultry Farm, Sewell, New Jersey. Demme says this is the first real improvement in poultryhouse lighting we have had since we began lighting chicken houses. Incidentally, the Demmes are the oldest official R.O.P. breeders in the United States.

of rooms darkening, thus cutting production. When they do burn out and are replaced, it's as though a whole new fixture were installed. That's because the reflector is built in.

Third, these lamps are economical. To maintain a high productive level of illumination without the use of costly equipment would require the use of at least 150 watt inside frosted lamps. This same level (3 to 5 foot-candles) of light can be produced and maintained in the same area by using the 75 watt R30 reflector type flood lamps.

Herman Demme, of the Dembro Poultry Farm at Sewell, New Jersey, started in the poultry business in 1919. This veteran poultryman is very much impressed with the use of the R30 lamps. He states, "We believe that the adequate lighting of chicken houses is very important and this is the first real improvement we have had since we began lighting chicken houses."

Poult Starter



The day the baby poults arrive can be very perplexing for the turkey grower, particularly when the poults refuse to eat. By holding their heads high and completely ignoring their feed, the poults usually drive the exasperated grower to resort to some drastic means of force feeding. Otherwise, many would die of starvation. A highly vexing and laborsome method commonly used is to dip each poult's beak into water, then into feed, caking the feed over the outside of the beak but getting very little feed into its mouth. However, with heads held aloft, many poults may get their first meal by pecking it from the other fellow's beak.

The Ralston Purina Experimental Farm at Gray's Summit, Missouri has found a simple solution to this problem where poults are started in batteries. By arranging a vertical row of lights on the wall so that the feed in each trough is well illuminated, the poults take their first meal with no coaxing. Additional lights can be mounted on a simple stand made of galvanized pipe, and the stand located between batteries where no wall space is available for mounting fixtures.

Mr. Milhollen, Superintendent of the Poultry Division of Purina's Experimental Farm, claims these lights have solved the problem of starting poults on feed. "When they can see the feed, they will eat," he says, "it is not necessary to use any other method to persuade them."

VAN G. SUTLIFF

XUM

Radiant Slabs for Brooding

Provide Operating Cost Less Than ¾ cents Per Bird

By WALTER L. BAKER, JR.

It didn't take Henry Holderfield long to find out that row crop farming was hard work—

It was five years ago when Mr. Holderfield moved his family to a 30 acre farm near Roanoke, Alabama, and began raising cotton and corn. The more he plowed the more he became convinced that some other type farming would pay more dividends with less labor. By the end of a year, he had decided to taper off his row cropping and try dairying on a small scale.

The second year Mr. Holderfield began producing "manufactured milk" with eight cows. He raised a few row crops along with his new project, but gradually turned all thirty acres into pasture land. All the while, Mr. Holderfield continued to improve his herd and in time, he developed a small but profitable dairy operation.

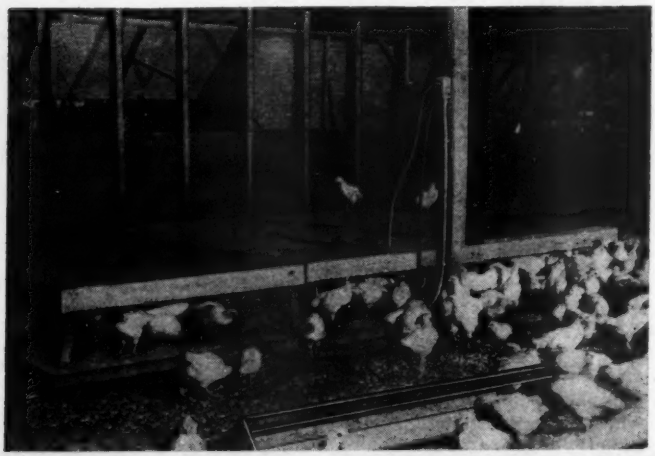
The dairy didn't take all of Mr. Holderfield's time, however, and he felt that there was some other type farming operation that would fit well in his program. Thus, about a year ago, he decided to try raising broilers. Henry Holderfield didn't jump into the broiler game with his eyes closed. He made quite a few trips to producers throughout the area before making any decisions. All types of brooding systems were studied.

After a couple of months of "visiting around" he became very much impressed with the several radiant floor systems that he had seen. All were operating at a cost of around ¾c per chick under all year round brooding. He found little or no trouble with disease. Most producers seemed to think that this was caused by the radiant heat in the floor which resulted in a drier brooder house. He had asked about the continuity of electric service and found that, even in case of an interruption, it would take from 6 to 8 hours for a brooder to lose as much as 5° in temperature. This was due to stored heat in the floor.

Too, most farmers were using an 8′ x 10′ brooding slab for each 1,000 birds. This gives 80 sq. ft. of brooding space, more than most of the hovers on the market.

But still he felt that this system, as it was used, could be improved upon. Mr. Holderfield surmised that the 80 sq. ft. of hover space should be sufficient for 1,250 chicks for at least the first three weeks of brooding. This is the period when the chicks need the most heat. If this were true, said Mr. Holderfield to himself, why couldn't he enlarge the slab to accommodate 1,250 chicks throughout their brooding system and still only provide the same amount of heat as in the 8′ x 10′ slab?

Holderfield decided to give it a try. Work was started on a



Above: A close-up view of the concrete slab brooder.

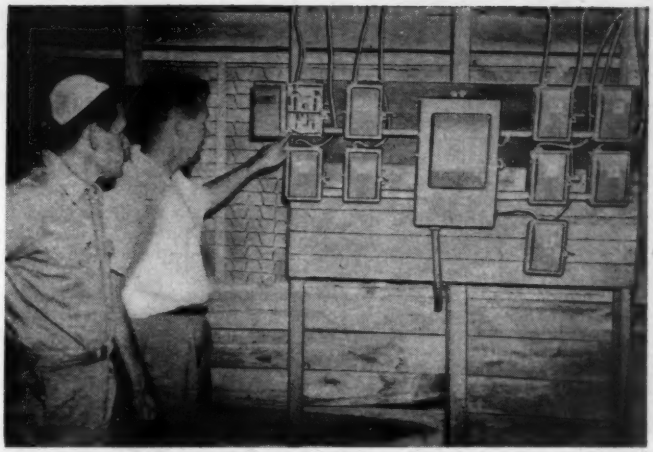
Right: Holderfield regulates a thermostat on one of the brooding slabs.

38′ x 250′ brooder house to accommodate 10,000 chicks. Instead of putting ten 8′ x 10′ brooding slabs in the house, he installed eight 8′ x 12′ slabs to accommodate 1,250 chicks each.

Each slab was built by placing 2″ x 8″ forms level on the dirt floor. Four inches of gravel, well tamped in the forms, was covered with a 15 lb. felt paper. A 4″ slab, made of cement and zonolite (expanded mica) in a 1-2 mixture, was poured on top of the paper. After the slab had dried, two 800 watt electrically heated cables (each 160′ long) were evenly distributed over the central 8′ x 10′ portion of the slab on 3″ spacings. This left 1′ 3″ on each side unheated.

Inasmuch as one hover 8′ wide and 12′ long would be a bit bulky, Mr. Holderfield decided to make three hovers for each slab. Each hover was made from a 4′ x 8′ piece of 5/16″ plywood braced with 2″ x 4″s and mounted on 12″ legs. The underside of the plywood was painted aluminum to reflect heat and a 7½ watt attraction lamp was placed under the center hover. A guard of 1½″ hardware cloth was made to fit around each thermostat (one per brooder) to protect them from the chicks.

The entire brooding installation, including wiring, cost Mr. Holderfield less than $100 per brooder. Each brooder was placed on a separate fuse protected circuit. Ventilation in the house was aided by an aluminum roof equipped with two 6″ rows of ridge type ventilation down the center. A 3′ space in the two long sides of the house, just below the eave level, was left open to let in still more air.



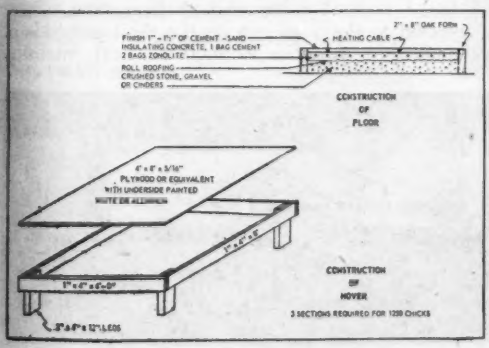
John Bryan explains the workings of the cartridge type fuses to Holderfield's nephew, Gene Thurman. Evident also, is the planning that went into this wiring layout.

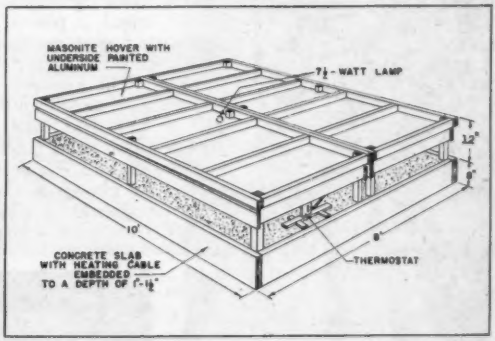
Provision was made for covering the windows with a heavy cotton cloth in the winter time to keep out the wind.

Mr. Holderfield says that the only mistake that he made was providing only three waterers per 1,000 birds. After the first two batches he corrected this by doubling the number and now he is thoroughly satisfied with his operation.

During last summer he obtained a conversion ratio of 37½ lbs. of meat per 100 lbs. of feed throughout the hottest period. The second batch of chicks raised during that time averaged 2.93 lbs. each when sold, an excellent average for summer production. Costs run below ¾c per chick. Any poultryman will agree this is economical.

The dual operation, poultry and dairying, is working fine for Mr. Holderfield. Neither interferes with the other. In fact, the droppings from his poultry operation have greatly enhanced his pasture program. It has almost eliminated his need for buying commercial fertilizer and the grasses do well. Needless to say, the two have replaced his old row cropping system of farming altogether.





These drawings describe in detail the construction of Holderfield's concrete slab brooder utilizing electric heating cable. The slab is made up as follows: 2" x 8" forms are placed on a level dirt floor. Then four inches of gravel is placed in the form and well tamped, and 15 lb. felt paper is laid over the gravel. A 4" slab of concrete and zonolite in a 1-2 mixture is poured over the paper. The heating cable is then installed. To secure the cables, a 1" or 1½" layer of concrete is poured over them and smoothed.

Electric Route for Ear Corn

Elevator and a Specially Adapted Conveyor Eliminates Hand Labor

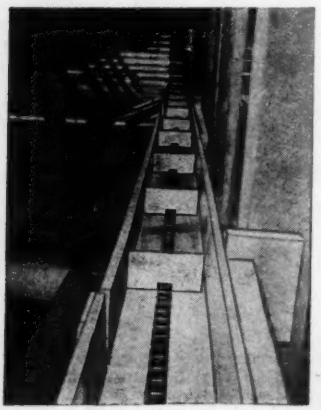
By ELWOOD F. OLVER

Mr. T. A. Doebler of Jersey Shore, Pennsylvania, produces hybrid seed corn. In a recent year he dried well over 1500 bushels of corn (on the shelled basis but dried on the cob) from 23 to 13% in 263 hours, using only 1509 kwhr and about 8 tons of soft coal.

The initial step of Mr. Doebler's drying operation is elevating the ear corn to the top of the drying building. This is done with a 44′ elevator. This elevator handles all the corn 2 men can shovel. It is powered by a one hp motor. A special feature of this elevator is a grill at the lower end to allow shelled corn and trash to drop out to prevent them from accumulating around the ear corn in the bin and creating "hot spots."

As the corn leaves the elevator it drops into a conveyor running the length of the drying building above the corn drying bins. This conveyor is operated by a ¾ hp motor. Jams are avoided since the capacity of this conveyor exceeds that of the elevator. To drop the ear corn into each bin, 3′ sections of the bottom and one side of the conveyor are cut out. Since some of the ear corn tends to ride across these openings on the chain, a cleat is nailed at an angle on the side of the conveyor to tip the conveyor cross-slats, thus removing the corn from the chain. A piece of plywood is placed below the cut-out sections to direct the corn into the bins.

T. A. Doebler is standing in front of his 44 foot elevator which takes his hybrid ear corn to the top of the drying building.



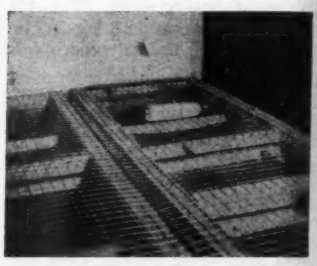
Above: Elevator drops the corn into this conveyor which runs the length of the building above the drying bins. Right: To drop the ear corn into each bin, this section of the conveyor's side and bottom are removed. The cleat nailed at an angle to the side of the conveyor removes the ear corn from the top of the chain.

The five bins are all 12½′ long with widths of 4′, 5′, 5′, 10′, and 11′. The bins were made air tight, with roofing paper, and a 9½ foot depth of ear corn can be placed in each bin.

Heated air is supplied to the bins from a large main duct or plenum chamber. For each bin there is a hinged door from the duct which allows air to enter under a false floor. These doors are 20″ high and run the length of each bin. Shelled corn is dried on the floor of the plenum chamber, rather than in the bins.

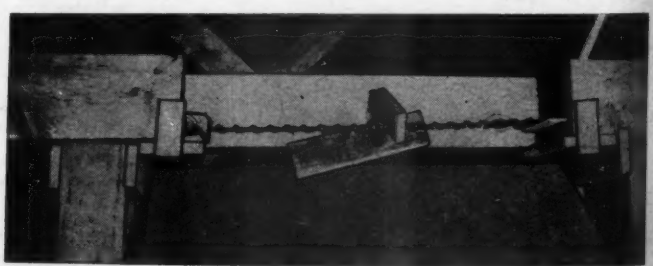
The false floor of each bin is made of 2 x 2's covered with one-inch mesh wire. It is in sections which are removable for cleaning the bins.

Heated air is provided by a centrifugal fan and a steam radiator. The fan delivers over 18,000 cubic feet of air per minute at ½″ pressure. The steam radiator is boxed in on the suction side of the blower. It is arranged so that either all or just part of the air is drawn through the heating unit. This is accomplished by covering or uncovering the ends of the fan opening, as desired.



The false floor of each bin was made in sections and covered by one-inch mesh wire. The sides were made air tight with good lumber and tar paper.

A second heater was later placed on the discharge side of fan to increase heat intensity.



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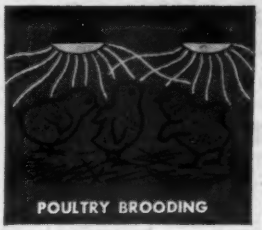
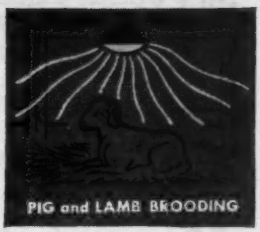
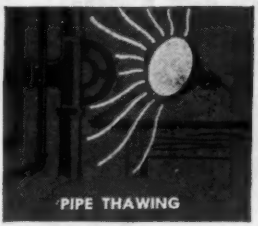
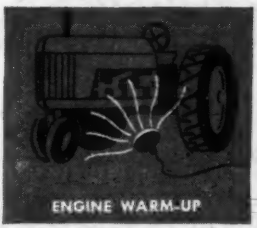

POULTRY BROODING


PIG and LAMB BROODING


PIPE THAWING

WARMING SHEDS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XUM

Plan for Positive Ventilation

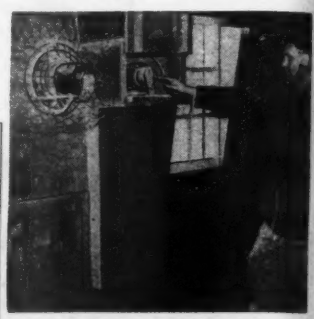
Two-Fan System Popular in the Dakotas

By JOHN S. ARNOLD

Your poultry house must do more than just protect chickens from the wind and cold. It must also provide an environment which is conducive to higher egg production and therefore bigger egg profits.

One way of achieving this goal is to keep the hens happy and contented through a good ventilation system. Your poultry house must be soundly constructed and preferably insulated, however, before ventilation can do much good.

Some folks may believe that sticking a fan through the wall will do the job. It won't. Ventilating systems, which involve more than just a fan, must be carefully designed and located. They must fit the house in capacity—that is, the work necessary to be done. Electric fan ventilation is desirable for it will give a positive air removal at low cost and is adaptable to thermostatic control.

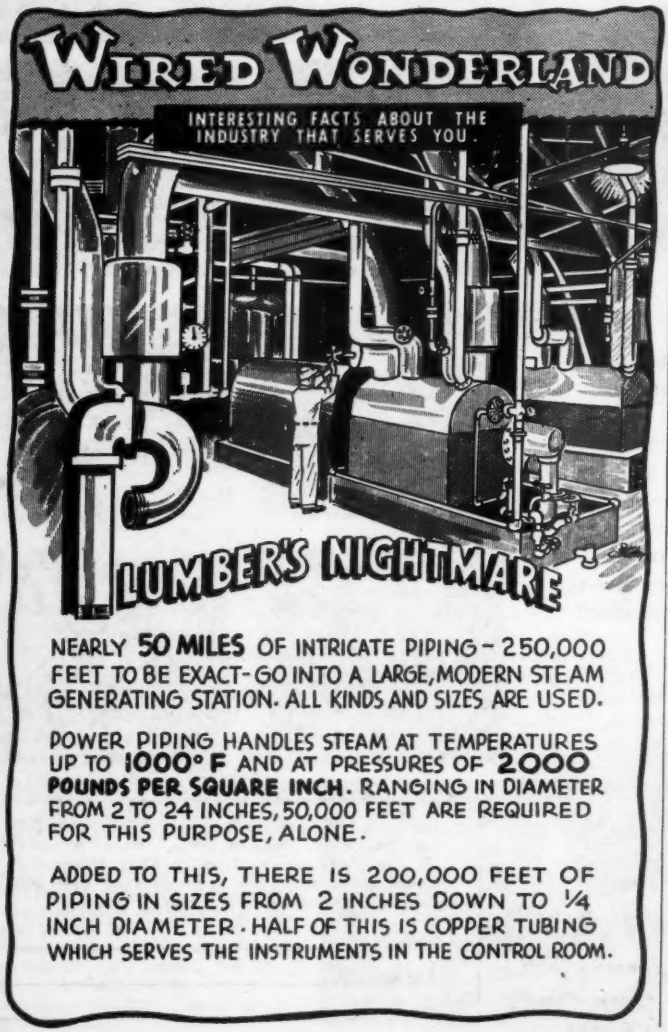


Fans should be placed side by side, not at opposite ends of the house. The cabinet housing over the smaller fan, which operates continuously, allows air to be drawn from off the floor. This operation conserves heat and removes the air which is highest in humidity. A damper can be built into the cabinet to further restrict air movement, if desired. The door at top of cabinet is closed for cold weather ventilation, and opened in mild weather.

Perhaps the need for ventilation can be explained in this way: Your laying flock gives off heat and moisture. In Dakota climate, it is necessary to conserve this heat. Warm air can hold more moisture than the cold air outside, so, in order to prevent condensation on the walls, ceiling and floor, some of that warm, moist air must be removed from the house and be replaced by fresh, dry air to absorb that moisture. An adequate ventilation system will do this.

Dakota producers have had good success with an electric, two-fan system. This system includes a small fan which operates continuously and a larger fan which will kick in when the inside temperature increases. It is controlled by a thermostat.

Just any two fans you might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select from your dealer won't do the job. Your selection must be based on the particular job those fans have to do. Fans that do not have enough capacity will still allow damaging moisture to remain in the house.

The small fan should handle approximately one-fourth of the capacity or air-movement job required while the larger fan should do the remaining three-fourths of the ventilating. Fan capacity is figured at one-eighth inch static pressure so that the correct amount of fresh air can be brought in and a slight vacuum maintained. Manufacturer's ratings should be used in determining this. Diameter size of fan does not indicate capacity.

Some manufacturers supply a one-fan unit in which air movement is controlled by shutters and a damper motor operated from a thermostat. Such units are performing very well in several poultry houses in South Dakota.

Farmer experience has shown that single fan units operating

The continuous slot inlet brings fresh air down from the loft. This air is always somewhat warmer than direct-from-the-outside air. The fresh air flows down the wall in a metered stream resulting in no drafts and moisture-free walls. Twenty-four inches of slot area should be provided for every 100 cfm of fan capacity.

only intermittently do not offer adequate ventilation, since humidity will build up in extreme cold weather when the fan is not operating.

Capacity or the amount of air which should be moved in a given time, is based on the number of birds in the house and how well the house is insulated. In South Dakota, it has been found that three cubic feet of

. . . . . (More on page 32)

"My Stainless Steel bulk tank will pay for itself in 3 years"

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UNITED STATES STEEL

Mechanical feeders have found their places in large flocks and small. They are especially advantageous in operations such as this one at Mellow Farms, a unit of Ketay's Hatchery, Huntington, L. I., where 30,000 White Americans are fed in this 620 by 50-foot poultry house.

Automatic Feeders

Save Time and Increase Production for Poultrymen

By **WILLIAM A. SNYDER** and **FRED LANG**

Probably no single unit, developed for the poultryman, in recent years, has been received with such gratification as the mechanical poultry feeder. After all, the chicken farmer's heaviest work is the manual handling of feed from feed room to hopper. And here was a device to end his backache and allow him time to devote to other management problems.

Only today has it become fully evident how right the poultryman really was. Recently tests that bear him out were completed, showing just how much time and labor mechanical feeders were saving, and, even how much *feed* the mechanical method trimmed from the manual method.

Here, briefly, is what the most recent tests show the mechanical feeder has accomplished:

It has saved growers with flocks between 3000 and 3500 layers more than two hours a day.

It has saved growers owning as few as 900 chickens an average of five hours a week.

It has enabled a New Jersey broiler raiser who formerly could care for only 7000 birds by himself to expand to 25,500 meat birds without additional help.

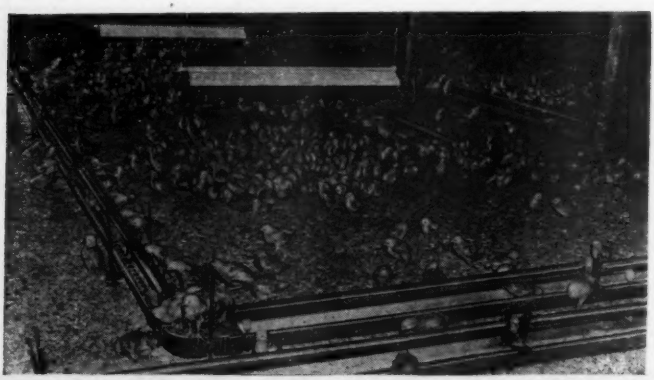
It has enabled broilermen to add a pound of meat to their birds with only 3.01 lbs. of feed, while meat bird raisers feeding by hand use 3.45 to gain a pound of meat—as shown in a Pennsylvania State University test.

It has fed birds so that they require only 6.67 lbs. of feed to produce a dozen eggs, while hand-fed birds still require 6.77 lbs. of feed—as shown in a test by the same university.

Lastly, it has enabled growers of layers to keep five to 10 per cent more birds in pens of the same size, due to the small amount of space the automatic feeding set-up requires.

Mechanical feeders achieved their initial popularity not only because labor was expensive, but because it was scarce. Today, with the poultry industry in the financial doldrums, the money-saving factor is foremost. And because labor is money, the appeal of the automatic feeder has not waned.

A most interesting test of labor saving was conducted a few months ago by an industrial engineering team at the request of the Mechanical Poultry Feeders Association. This is a non-profit



Versatility of automatic feeder makes it adaptable to all methods of brooding.

organization formed to disseminate information of an educational nature on the benefits of automatic feeders of the chain-driven type. The test was conducted in the Vineland, New Jersey, area, center of the East's most heavily concentrated egg-producing region. Stop-watch tests were supervised on two efficiently run farms of the same size and layout, where one farmer fed by hand, the other with two automatic, chain-driven feeders. Both poultrymen had long, single-story coops of the type popular on commercial poultry operations.

On the farm with the automatic feeders, an operation with 3600 White Rock layers, the feeding chore was completed in only 16 minutes, although grain was hand-fed. On the farm practicing 100 per cent hand-feeding, the chore took two hours, 23 minutes, despite an advantage of 300 fewer layers. The

Further versatility of the automatic feeder is demonstrated in its use outside on range. Here, a Pennsylvania farmer has moved a standard mechanical feeder to his range, where his flock of White Rocks are fed automatically.

engineers conducting the test discovered that if the grain-feeding was eliminated as a manual operation on the mechanical farm, feeding time would be cut to six minutes!

The case for the automatic feeder has received a considerable boost from university experiment stations, which are always anxious to better the lot of the farmer. It was a test at the University of California that pointed up one of the most important aspects of mechanical poultry feeding; that mechanical feeders offer as much in time and labor-saving benefits on the small poultry operation as on the large. They conducted a labor study on 12 Sonoma County poultry farms. It was found that on the average, poultrymen without mechanical feeders spent only two per cent. Quite a saving!

This percentage works for large operations and small alike. It was during this same survey where researchers found that the farmer with a mechanical feeder spent only one-half hour per week in feeding 900 hens, as against an average of five and a half hours per week for hand-fed flocks of similar size.

Officials at the Black Belt Branch Experiment Station, Brooksville, Mo., described the mechanical feeder as "the greatest labor-saving machine on the station" after finding they could save two and a half hours a day on the feeding of only 2400 broilers.

The time and labor-saving benefits of mechanical feeders are well known by this time. But, a little-known factor in the comparison between automatic and hand feeding is the effect the former method has on feed consumption.

It was a pair of rigidly controlled tests at Pennsylvania State University that brought out one of the most surprising advantages of the automatic feeder. These tests revealed that mechanical feeding of poultry actually brings a saving of feed!

The tests with broilers showed that by the hand feeding method, 1372 lbs. of feed were consumed, compared with 1173 lbs. by automatic feeding. Feed consumed per pound of broiler was 3.45 lbs. by hand feeding, compared to 3.01 lbs. by automatic feeding.

The study with laying birds was between 100 sex-linked pullets fed by hand and another 100 automatically fed. The hand-fed group consumed 100.60 lbs. of feed in the test, or 6.77 lbs. per dozen eggs. The mechanically-fed pen at 95.64 lbs. of feed, or 6.67 lbs. per dozen.

A similar test was conducted by the university with 100 New Hampshire pullets, in which

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Joseph Perlman, Vineland, N. J., farmer, discusses efficiency of automatic feeder with industrial engineer who conducted time study on his 3600-layer farm. It takes him only 16 minutes each day to feed his birds. Fed through 710 feet of automatic feeder trough, Perlman's White Rocks are fed 375 lbs. of mash, 300 lbs. of mechanically-fed scratch and 150 lbs. of hand-fed scratch each day. A comparable flock under the same circumstances only entirely hand-fed, required 2 hours and 23 minutes for feeding.

total feed consumption for the hand-fed group was 96.34 lbs., compared with 92.53 lbs. when automatically fed.

Researchers have found it difficult to pinpoint the how and why of feed saving with the automatic feeder. However, at the University of California, for instance, where similar research was carried on, a spokesman noted, "We find that, on the average, the mechanically-fed flocks use somewhat less feed than do the hand-fed flocks." He further pointed out that the reason for the feed saving probably lay in management practices, that mechanical feeding cut out spillage and other wastes that accompany hand feeding.

Like the automatic watering unit and the egg grader before it, the mechanical feeder has proven itself. Five years ago, fewer than 1,000,000 chickens were eating from automatic feeders. Today, more than 200,000,000 broilers and layers are fed by machine, with the number growing daily.

The initial expense of owning an automatic feeder does not loom so large in the eyes of farmers today. A large part of the credit for looking upon the mechanical device as a saving rather than an expense must go to researchers at Texas A. & M. College. Five houses of broilers, each containing from 3500 to 6000 birds, were set aside for their experiment.

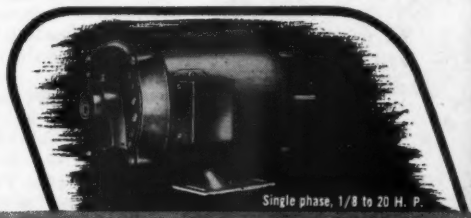
Their report showed the following:

For a 10-week period, 26.3 kwhrs per thousand birds for each brooding period were used. The average cost of operating the feeder for 1000 broilers was only 66 cents.

"Assuming the first cost of a mechanical feeder for 5000 birds to be $1000," the report noted, "and allowing annual rates of 10 per cent for depreciation, six per cent for interest on investment, and three per cent for repairs, the yearly cost of the

. . . . . (More on page 32)

Century



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The furniture and the paint job in this pen are very poor, but they are much better than the pigs expected. It must be cozy because the little rascals did not even look up to see who was taking the picture. A sign reading "Do not disturb until lunch time" would be appropriate here.

Cozy Corner

Kelly Rowe, living a half mile north of Vineland, Colorado, keeps about three thousand chickens, fifty rabbits, and several cows and horses. On top of that, he now has forty-three little Durocs from five mamma pigs. What's more, they are the ones that will stay around because a half dozen runts already have been eliminated.

At first, Kelly decided to use one lamp, moving it to any one of the five pens as needed. However, the sows did not cooperate and soon there were squeals from all over the place. Having raised farm animals all his life, and seeing how well the first batch of little porkers loved the warmth of the heat lamp, Kelly did not have the heart to steal it. So, he now has five!

Experience has proven that it takes five of the piglets to break even. Any over that number represent profits. Mr. Rowe feels proud to have average sturdy litters of eight and one-half pigs each. That is a lot better than averaging about six per litter as Mr. Rowe has in previous years. The cost of operating the five 250 watt lamps twenty-four hours a day for fifteen days is exactly $9. That's the sale price of just one porker!

Kelly, who practically had to live with the litters before he had the heat lamps, is quite familiar with the ways of pigs. For instance, mamma gives a dinner call. As soon as a few grunts are heard the little ones scamper to the table. After several trips to the table, each piggy keeps the same dinner plate for his exclusive use until he is weaned. Since the addition of the lamps the sow is very apt to lie down with the dinner plates as close to the heat of the lamps as possible.

I have visited the hog barn, myself, four times in a day to try to check the amount of time the little porkers spend sleeping. However, they go in and out too often for such a schedule. It seems that they sense danger. As soon as the old sow makes a racket, gets up against the boards, or starts to root, they scamper into the bedroom for safety.

So, if you raise pigs and haven't provided any special bedrom for them, build a cozy corner and hang an infrared heat lamp over it.

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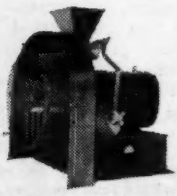

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How a Milking Machine Milks

By DONALD BROWN

Milking machines have not always been the modern, efficient devices that we know today. One of the early patents for a mechanical milker was granted for a pitcher pump attached to a board with four holes that fitted over the cow's teats. Another early patent was granted on a mechanical hand. Milkers, like many other farm machines, began as an adaptation of other items or ideas that were already in use.

Do you know that the process of machine milking is practically the reverse of hand milking? Let us illustrate the machine milking process by diagrams. In Figure 1 the milker is creating a vacuum on both the milk tube and the vacuum tube. This means that both the inside and outside of the inflation liner are subjected to the same vacuum; therefore, the liner assumes its

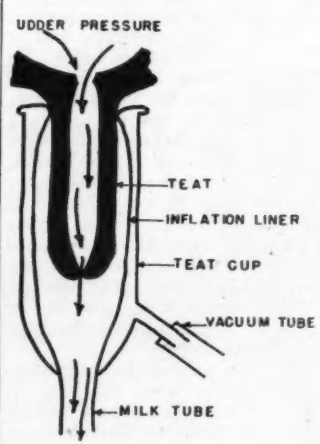

Figure 1

normal or extended position as shown in Figure 1. This also means that the opening of the cow's teat is subjected to the vacuum, thereby allowing the udder pressure to cause milk to flow.

In Figure 2 the pulsator has opened the vacuum tube to the atmosphere. Since the vacuum on the milk tube is constant, the atmospheric pressure on the walls of the inflation liner has caused it to collapse against the teat. This is known as the massage stroke and milk does not flow at this time. Thus we see that milk is actually forced from the teat by the udder pressure when the teat is subjected to a vacuum during the milk stroke.

Compare this with the process

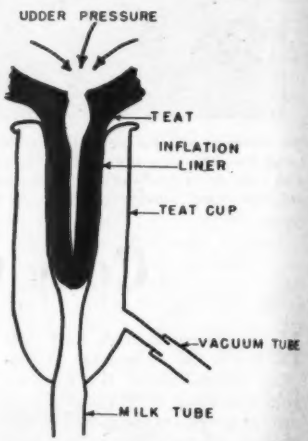

Figure 2

of hand milking as shown in Figure 3. When the hand closes around the teat, it pinches off the opening at the upper end and actually forces the milk

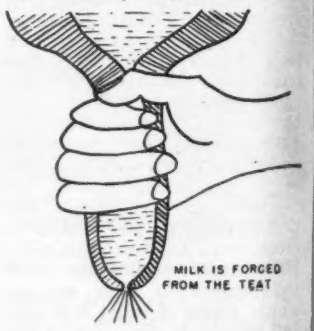

Figure 3

through the bottom. When the grip is released, the teat cavity fills with milk, and the process is repeated.

First, select a well drained area, protected and with a southern exposure.

More Fun and Flowers From a Hot Bed

Times change and with them some of the old familiars. The hot bed is one case in point. The traditional way of supplying heat to a hot bed is to lay a mattress of manure at the bottom of the bed, cover it with dirt and the biological heat of the manure would make the seeds think it was spring and cause them to start growing.

Lay the cable in a 6 foot spaced grid pattern on a bed of sand. (6" of cinders, 1" of sand, cable, 6" or good soil is a dependable formula).

The result was a prideful tomato or bloom before the neighbors had one.

It was not all gloating glory however. Good manure was not always easy to come by. Sometimes it would not heat right. And always the heat was largely uncontrolled and irregular.

However, with time, the hot bed has changed. Today, instead of manure, an inexpensive heating cable is buried right in the soil of the hot bed. It is controlled by a simple thermostat. So now, without fuss or mess and with accurate control, anyone can enjoy the advantages and fun of a hot bed.

Above: The thermostat is mounted conveniently inside the hot bed. The thermostat bulb is stabbed into the top soil for its full length. Care must be taken to keep it midway between the cables. **Below:** Flowers and garden plants get an early start which puts a hot bed gardner ahead of the game.

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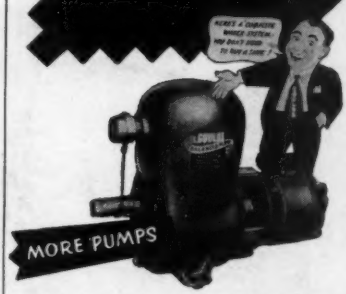

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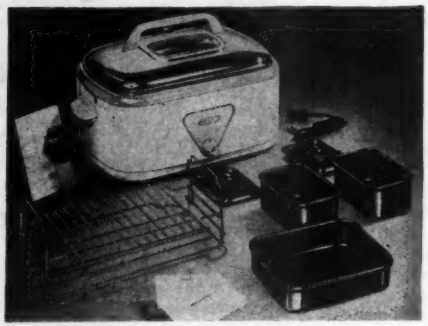


Nesco Roaster

Anything you can cook in your electric oven, including complete meals, cakes, and desserts may be prepared in the roaster. Extra accessories for the roaster to serve in other ways of food preparation are broiler and rotisserie attachments. When you want scrambled eggs, soups, sauces or other foods for a large crowd, simply lift out the rack and there's a big pan to cook food for a mob.

A roaster consists of the outside pan with fiber glass insulation, inset pan, lid, rack which sets in the inset pan, and baking pans. This 18 to 20 quart appliance will roast up to 24 pounds of meat. It is designed for easy handling with heavy duty handles that will hold considerable weight without loosening.

Rectangular and oval in shape, they are available in heat resistant enamel with chrome, grey, or black trim. Some lids are hinged onto the roaster, while others are removable. A few of them are of the self basting shape. A look-in panel on the lid is a feature of some models, while others have adjustable browning vents.

One meat dish, two vegetable dishes, and two lids are standard baking dishes included with the roaster. These are of heatproof glass or porcelain. In most models the rack is adjustable for lifting and serving and can also be used for baking on two levels.

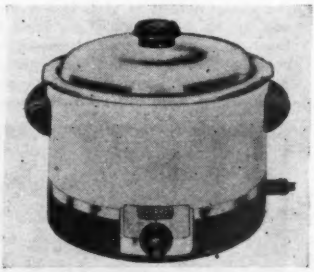
The heat control knob is illuminated with a light to signify when heat is on. One model has a temperature thermostat below a timer clock to make it completely automatic. This enables it to be controlled as to time of baking, on and off, even when you are not there. Most timers have a range from 15 minutes to 11½ hours.

Roasters range from 1320 to 1500 watts and sell from about 40 dollars for standard models to 80 dollars for automatic.

Utility tables or metal console style cabinets with or without timer and clock may be purchased for about 6 to 20 dollars as an accessory to the roaster. The timer and clock is also available separately for about 13 dollars. Another accessory is a broiler-griddle, which makes the roaster an infra-red broiler or a griddle. This sells for about 8 dollars extra. In one model the aluminum reflector doubles as a cookie sheet.

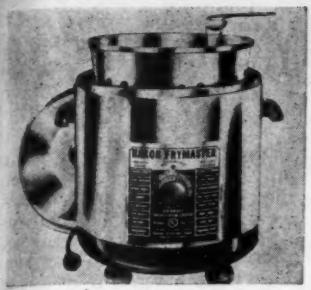
One manufacturer has just introduced a rotisserie as an accessory. It is of polished aluminum and shaped as a half cylinder. It sets over the roaster and will hold a 12 pound turkey. Vegetables may be cooked in the roaster while meat is rotary broiled. A 1500 watt heating unit provides infra-red rays for cooking and a 3600 rpm motor provides the 3½ revolutions on the spit per minute. It sells for about 30 dollars alone, 75 dollars in combination with the roaster, and 40 dollars with roaster inset pan and a wrought iron stand.

Westinghouse—Roaster and Rotisserie

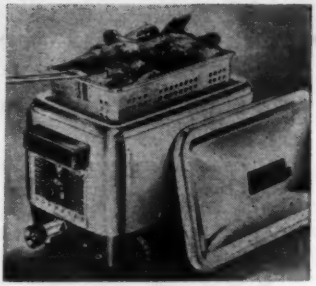


Everhot Casserole

Another oven and deep well appliance with more uses than



Naxon Fryer Cooker—Round



Dormeyer Fryer Cooker—Rectangular

its name implies is the electric casserole. Besides casserole uses, it roasts 6 to 9 pounds of meat, cooks soups and stews, bakes apples, serves as a chafing dish to keep food hot, and also because of its insulation keeps cold foods cold.

These round casseroles with 2½ to 6 quart capacity have baked enamel or chrome finish with aluminum covers and plastic handles. They are available with or without thermostatic control. The heat control without the thermostat is a hi-low control, while thermostatic control ranges from 150° to 500°F. This heat control determines wattage used which varies from 100 to 800. Casseroles sell from 19 dollars up.

A variation to the casserole is the bean pot or an electric casserole with a crockery or stoneware vessel. These are designed for long slow cooking to give that "old fashioned flavor" of the waterless cooker. "Set and forget it" is a feature of this appliance. It is not only useful for beans, but for any foods that take long cooking such as cereals, dried fruits, soups, chili, chop suey, and spaghetti sauce.

From 1½ to 3½ quart capacity they operate on hi-low heat control using 50 to 200 watts and cost from 6 to 20 dollars.

Another all purpose unit that performs many duties is the fryer-cooker. It is an outgrowth of the deep fat fryer to make it more useful for the homemaker. This cooker is a roaster, baker, fryer, cooker, warmer, and server. It can be used for a variety of dishes, vegetable blanching, corn popping, food defrosting or table cooking.

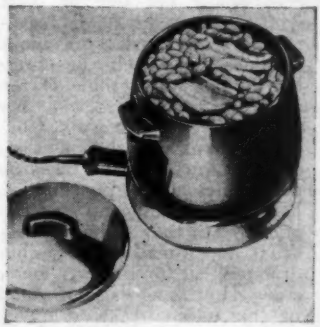
These appliances are round, square, and rectangular in shape holding from 3 to 7 pints of oil or 3 to 6 pounds of shortening for deep fat frying. They also hold from 4 to 6 quarts of food for cooking. One manufacturer has what is called a party size. This is ideal for quantity cooking and frying. It holds 12 pints of oil and has twin baskets for frying one or two foods at the same time.

Chrome plated and brushed aluminum are popular finishes of these cookers with air space insulation. Fry baskets, a part of these appliances, are of wire or perforated metal design and hook onto the fryer for self draining. Additional equipment for some models are popcorn basket, utility rack, roaster rack, and cover. Some have a fat drain faucet, while others are designed for easy pouring of fat.

Designs of the appliances range from tapered sides to straight sides with rounded and flat bottoms. Some manufacturers claim tapered side fryers use less oil and provide more frying space. Some sides have grease level markings, all low enough to prevent spattering.

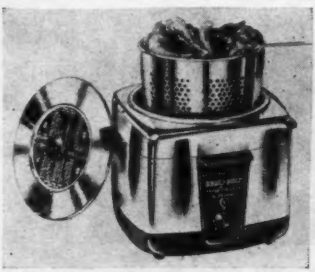
Heat units, which are placed on the bottom or around the side above the base, use 1050 to 1650 watts. All have automatic controls that range from 150° to 450°F. This enables a steady heat for all purposes. A color dial designates selected temperatures on a few models. On some a light goes on when the desired temperature is reached and on others the light goes out to tell when to start frying and cooking. Temperature charts with ideal setting and cooking heats are a part of most cookers. These are located on the control panel, on the lid, or on an aluminum plate with suction cups and a small chain to fasten in a convenient place.

The all-purpose helpers, cooker-fryer, sell from 18 to 30 dollars. They will prepare many delicious dishes for meals from breakfast to supper.

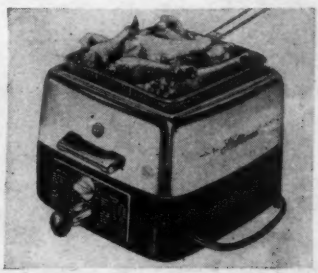


West Bend Bean Pot

Roasters, casseroles, bean pots, and fryer-cookers are just a few of the appliances that have many uses, perform some of the duties of the range, and are usable both in the kitchen and at the table. Future articles will discuss these other appliances.



Broil Quick Fryer Cooker—Square



Holliwood Fryer Cooker—King Size

XUM

Housework Time Cut to Minimum

with Electrical Equipment

By **FRANCES WOLFE**

If you still consider that automatic laundry equipment is a luxury to be enjoyed with social security and annuity checks, let's look at the situation from a realistic point of view. Why not consider automatic washers, dryers and electric ranges almost as essential as Dad's new tractor and combine? We know he needs this equipment to save labor costs, increase efficiency, and to save himself. They are the same three reasons women give for wanting automatic equipment.

Even the healthiest of parents occasionally get sick or meet with accident. If it's "Mr. Head-of-the-Family" who succumbs to illness, it will be necessary for Mother to do some of the chores and supervise (if not actually do) the farm work. Conditions permitting, she may even work in town. As she takes on new duties and responsibilities, her home duties continue. The laundry still has to be washed, dried, and ironed, and the children still eat three hearty meals a day. How much easier it would be the automatic laundry way and how nice to have warm meals for the family coming out of the automatic electric oven even tho Mother had been on her "other" job since early morn.

Most men if faced with the problem of managing both farm and home would sacrifice a new piece of machinery to buy equipment to make the weekly laundry tasks easier.

It seems to be a wiser plan to work out an "equipment assurance plan" as you go along. The goal of adding a major household appliance, or other modernizing equipment annually, until you have a well equipped kitchen and laundry is one worth striving for. Then if an emergency arises, you have dependable appliance helpers to serve you.

Mrs. Earl Burwell, Talmage, Kansas is a lady of varied civic activities. She also teaches a Sunday school class and is Home Improvement Leader for 4-H club and Talmage Home Demonstration Unit.

In 1946 the Burwells started an equipment assurance plan with the acquisition of an electric refrigerator and new linoleum. The next purchase was a grey and red chrome dinette set, then steel cabinets and sink unit were added in 1953. This year an electric range with clock controlled oven will enable Mrs. Burwell to have an oven dinner ready for her husband and their hungry, teen age son, Bill, even though she spends the afternoon at the Sew and Sew Club. A look to the future holds the hope for the next equipment addition—a food freezer to replace four commercial food lockers.

Mrs. Duane Reilly does an admirable job of the triple role of Mother, homemaker, and secretary. When Mrs. Reilly and Steve, her small son, leave their farm home at seven o'clock each morning for the 14 mile ride to work and Grandma's house in Abilene, she has no mealtime worries. She knows her husband will be thankful for the convenience of clock control features of their electric range as a hot oven meal awaits him at twelve o'clock.

None can deny that these women are good organizers but let's give credit, too, to the appliances that execute their plans with ease and efficiency.

Mrs. Earl Burwell's timer controlled oven, cooks dinner for her and her family while she is busy with community activities. On her return home the meal is ready to serve.

An electric range eliminated mealtime worries for Mrs. Duane Reilly in her triple role of mother, homemaker, and secretary. Here she sets the timer before leaving for work.

Let Your Washer Starch the Clothes

Starching of garments need not be a regular laundry day drudgery. Let the washing machine do the manual work for you. This machine is especially helpful for starching heavy unwieldy articles, though its a big aid in regular starching.

You'll need a larger quantity of starch solution than for hand starching. Make up a basic quantity and dilute according to your needs. A basic recipe to follow is to mix ¼ cup lump or powdered starch with a little cold water. If desired, an ironing aid may be added. Pour in 1 qt. boiling water, stirring constantly.

A gallon of this basic starch mixed with 6 to 8 gallons of washer water will give you a medium starch. Two quarts mixed with 6 or 8 gallons of water will give a light starch.

Follow the starching directions for your washing machine as given in the manufacturer's direction booklet. With a washer that has controlled water amounts, smaller quantities of starch may be used. This will be governed by the number of garments to be starched.

Run the machine about 4 minutes for starching. Put garments through wringer or spin dry to to extract water and excess starch. If garments are to be dried in the dryer a slightly heavier starch is recommended as some of the mixture is shaken off. Remove starched clothes from dryer before they are completely dry to prevent deep set wrinkles. They may be rolled for ironing directly from the dryer, thus eliminating sprinkling.

After using the washer and dryer for starching, it is important to wipe out the inside of the machine to remove all traces of starch mixture.

The ease of handling starching of clothes by letting your washer do it for you will make you want to include it as a regular part of your laundry routine.

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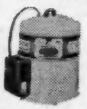

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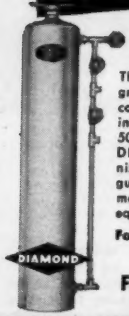

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Kitchen Arrangements

You make the greatest number of kitchen trips between your sink and range center, according to research at the Cornell Experiment Station. Placed side by side with a counter between, or at right angles to each other, they can save steps. Then when you stand at the sink, you can see what's cooking without walking back and forth to check. Some counter space as well as convenient storage space is needed at each work center. The sink needs counter space on both sides.

In arranging to cut kitchen travel, the number of trips from one center to another needs to be counted as well as the distance. Two or three feet between centers that are used often can make a notable difference at the end of the day. This is especially true for an older woman or to one with a cardiac or arthritic condition. A saving of inches that would mean little in your husband's work can mean much to you. That's because you repeat your trips so often in preparing and clearing away meals.

As evidence of greater need for easier kitchen arrangements, Mrs. Mary Koll Heiner, of the Cornell Experiment Station, points out that we are an aging population and that health handicaps increase with age. Cardiac ailments are high on the list. Eye difficulties are greater with the aging of women than of men. Mrs. Heiner stresses convenient groupings of work and storage centers to save the homemaker's time and health and to avoid needless fatigue in this most used work-and-living center.

Each appliance needs adjoining counter and storage space for efficiency of use.

Sew the Modern Way

With New Materials and Threads

What fun it is to sew in this modern era of man-made fibers, blended fabrics, and new finishes! New color tones, bright prints, textured materials, and novelty weaves provide a wide choice for the homemaker. Thus she should have no trouble finding something to fit the complexion, figure, and likes of the wearer.

Many home sewers today are selecting fabrics made of man-made fibers or of blends of them because of their ease-of-care qualities. These materials can be easily made at home into attractive garments by following a few simple rules.

The same basic sewing procedures are followed for synthetic fabric namely nylon, dacron, orlon, and their blends as for the natural fiber materials such as cotton, linen, and wool. As these synthetic fabrics are stronger and resist stretching, shrinking, and sagging they will naturally require a few variations to the basic rules.

Here are some suggestions to help you in fashioning new garments from these interesting fabrics:

It is important to have good tools for these materials. Well-

Each seam should be pressed on the wrong side with a low temperature iron.

sharpened shears are needed for cutting. Use long, clean strokes cutting with middle of the blade. If the material has a tendency to ravel cut a generous seam allowance. Use clay chalk for marking, as crayon or wax may leave marks that are hard to remove from synthetic fibers.

Pins and machine and hand needles should be fine with sharp points. The toughness of the synthetic fiber has a tendency to dull the needle. Thus better results are obtained, if the needle is changed frequently.

Select thread with the same qualities as the fabric on which it is to be used. Thus nylon is recommended for nylon and dacron for fabrics containing dacron or orlon. Dacron, a new thread, may also be used on rayon, acetate, wool or silk. Its strength and fineness makes it ideal for use on knitted and sheer fabrics and for top stitching.

For best results in machine stitching with dacron thread, use a felt pad over the spool pin, if your machine doesn't already have one. This pad prevents thread from unwinding off the spool too fast. These pads may be purchased at a sewing supply store or may be made at home. To make, cut a small circle from old felt just a little larger than end of spool. Cut a hole in center of circle and slip over the spool pin.

Place spool of dacron thread on spool pin with the notched thread-holder side up. This prevents the spool from snagging on the felt pad.

As this strong thread works through the eye of the needle it has a tendency to sharpen the eye. Thus if the needle is not changed frequently, the sharp edge breaks the thread and you are constantly having to rethread the machine.

All thread should be cut. Here again its toughness makes it almost impossible to break. If an attempt is made to break it, the result may be puckered seams. Also clean-cut ends are easier to thread through a needle. To prevent knotting of thread during hand sewing, remember to thread the needle directly off the spool and tie a knot in end cut from spool.

Test machine stitching on the fabric before starting to work on the garment. To test, use a double thickness of material on the straight of goods. Adjust stitch length to suit construction and weight of fabric. Tension adjustment should not be tight enough to pucker.

To insure even, stitched seams on new fabrics or in using threads it is important to operate the machine with a slow even speed.

For best results run sewing machine slowly and with an even speed. This guarantees even stitching without breaking, pulling, or puckering. Sew from hem to waist, armhole to waist, and neckline to shoulder. A good rule to follow is to sew from narrow to wide part. A row of stay stitches at waist and collar makes fitting easier.

Retrace several stitches at each end of seam to fasten the thread. To prevent ravelling, bind, edge stitch, or overcast seams. Seam edges of tightly woven fabrics may be pinked.

Pressing is important to give the finished look to a garment. Press each seam on the wrong side after stitching, using a low temperature (rayon or synthetic setting on automatic irons). A steam or dry iron with a damp

. . . . . (More on page 26)

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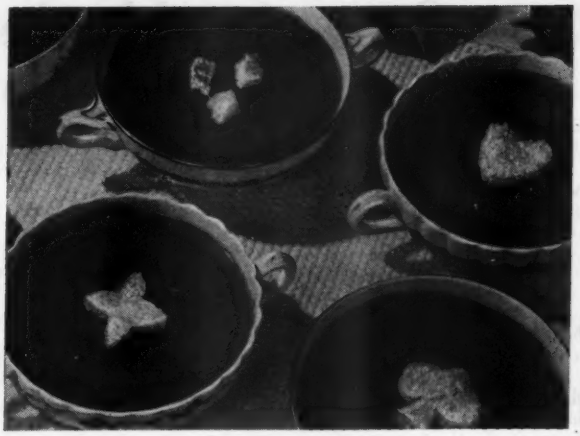

Tomato Soup

Can Be Basis for Many Meals

Tomato soup is very versatile. It rates as one of the most popular soups, as an excellent meat and vegetable sauce, or as an ingredient for other dishes.

As a soup it may be served as is or in combination with other soups such as clam chowder, mushroom, beef noodle, or green pea. Vary the garnishes and you have varied the soup. Some popular garnishes are popcorn, crisp dry cereal, sour cream—plain or with chives, crisp bacon bits, grated cheese, or frankfurter slices.

Soup is superb when used as an ingredient by adding flavor and moisture to the dish.

Tomato Cheese Macaroni

- 1 can (1¼ C) condensed tomato soup
- ½ cup milk
- 2 cups shredded sharp processed cheese
- ¼ cup chopped parsley
- 4 cups cooked macaroni (2 cups uncooked)
- 2 tablespoons buttered bread crumbs, if desired

Heat soup, milk and 1½ cups cheese over low heat; when cheese melts, add parsley. Blend with macaroni; pour into a greased 2-quart casserole (or in individual casseroles). Top with remaining cheese and buttered bread crumbs. Bake 20 minutes in a hot oven (400°F.). 6 servings.

Marvelous Meat Loaf

- 1½ lbs. ground beef
- 1 can (1¼ C) condensed tomato soup
- 1 cup fine, dry bread crumbs
- ½ cup chopped onion
- 1 egg, slightly beaten
- 1 teaspoon salt

Combine all ingredients and mix well. Pack lightly into a loaf pan or shape into a loaf. Bake in a moderate oven (350°F.) for 1 hour. 8 servings.

Tomato Soup Cake

2 cups sifted cake flour
3 teaspoons baking powder
½ teaspoon soda
½ teaspoon powdered cloves
½ teaspoon cinnamon or mace
½ teaspoon nutmeg
1 cup seedless raisins
½ cup shortening
1 cup sugar
2 eggs, well beaten
1 can (1¼ C) condensed tomato soup

Sift together flour, baking

powder, soda, and spices. Wash and chop raisins; dust with a small amount of flour mixture. Cream shortening and sugar; add eggs and mix thoroughly. Add flour mixture alternately with soup; stir until smooth. Fold in raisins. Pour into a greased and floured 8-inch square pan; bake in a moderate oven (350°F.) for about 1 hour, or until done. (If two 8" round layer cake pans are used, bake at 375°F. for 35 minutes.) 8 servings.

As a sauce it may be used as is for over chops, beef patties, croquettes, fish or vegetables. A special meat sauce may be made by blending 2 tablespoons prepared horseradish, 2 teaspoons prepared mustard, dash ground cloves and black pepper with 1 can condensed tomato soup. Or make a special barbecue sauce as used in the following recipe with chicken. This sauce may be made separately for use with other meats by using 3 tablespoons shortening in place of fat from browning the chicken.

Barbecued Chicken

3-pound chicken, cut in pieces
¼ cup shortening
¼ cup finely chopped onion
¼ cup finely chopped celery
¼ clove garlic, minced
1 can (1¼ C) condensed tomato soup
2 tablespoons brown sugar
2 tablespoons Worcestershire sauce
2 tablespoons vinegar or lemon juice
2 teaspoons prepared mustard
4 drops Tabasco sauce

Brown chicken well in hot shortening in skillet; remove chicken. In same skillet, brown onion, celery, and garlic; blend in remaining ingredients. Add chicken; cover and simmer about 30 minutes or until chicken is done. Stir occasionally. Makes 4 generous servings.

Found Facts

To give baked ham a different flavor, baste with grape juice, cider, or pineapple juice.

Avoid overdrying in a clothes dryer and save fuel and fabric by careful timing. If the clothes are left in the dryer after all moisture is removed, the cost of operation goes up and the fabric gets wrinkled.

To keep egg yolks fresh for several days, cover with cold water and store in refrigerator.

Baked products to be frozen should be removed from the oven when slightly under-done. When this is done they will retain their moisture and have desired freshness after any necessary heating. Be sure they are thoroughly cold before wrapping to avoid the formation of steam.

Desalt the oversalted soup by slicing a raw potato into it and boiling a short time; then remove potato, which will have absorbed most of the salt.

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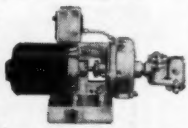

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Have you hung up new or freshly laundered white nylon curtains to discover a short time later that they look greyish? Does your plastic upholstery seem to be a constant dust catcher?

The reason for this is that friction causes static electricity in synthetic fibers. This charge is slightly negative and dust has a positive charge. Thus, dirt that is stirred up in the room is attracted to them as iron is to a magnet.

Most manufacturers have now solved this problem by using a permanent anti-static finish. But if you have some nylon curtains or plastic that were made before this finish was perfected, you can eliminate their dust catching at home. Add a few drops of vinegar to the rinse water when washing synthetic curtains or plastics. The vinegar acts as an anti-static solution and eliminates the attraction of dust.

Sew the Modern Way

. . . . . (Here from page 23)

cloth may be used. But, be sure that the seam is correct before using steam. The characteristic press retention of these fabrics makes creases harder to remove once they have been put in.

If you have selected the fabric because of its washability, be sure the findings (thread, tape, seam binding, and interfacing) are of sturdy, washable construction. There is no advantage to using a fabric that needs little or no ironing if the lining or findings require special care or pressing.

In selecting patterns for 100% dacron fabrics choose styles with few pieces and uncomplicated construction. Set in sleeves may create problems as the non-shrinkability of synthetic fabrics makes it difficult to shrink ease into sleeves. Choose a style with the sleeves cut in one piece with the bodice or one with a minimum amount of fullness in armhole seam.

Here's to the new garments made from man-made fibers that you have fashioned and which your family will be justly proud to wear.

Yours to Sew

9051—Your favorite classic! Depend on it to go everywhere at the ring of the phone! Misses' Sizes 12-20; 30-42. Size 18 takes 4¼ yards 35-inch fabric.

4516—Mom, pop daughter into pinafores! They're a snap to sew, iron in a jiffy! Make several with panties to match. Child's Sizes 2,4,6,8,10. Size 6 dress, 1⅞ yards 35-inch; panties ⅞ yard.

Send THIRTY-FIVE CENTS (in coins) for EACH pattern to: ELECTRICITY ON THE FARM, 233, Pattern Department, 243 West 17th Street, New York 11, New York. Add FIVE CENTS for EACH pattern for 1st-class mailing. IN CANADA: 60 Front Street West, Toronto, Ontario.

What Would You Say?

CONTEST

Awards for November Contest

Jim must go to the barnyard each night
How he gropes through the dark
is a fright
What he needs is a line
With a switch, how divine
? ? ? ? ? ?

The Winning Last Lines

FIRST PRIZE—$25 CASH

"He'd be bright to make light of his plight"
Mrs. Ward S. George
Sea Isle City, N. J.

SECOND PRIZE—$10 CASH

"A '3-way' would sure end his plight"
Ray E. Benson
Royalton, Vermont

Five Consolation Prizes—$3 Each

"It would save both his nerves and his sight"
Mrs. Arvid O. Carlson
Overbrook, Kansas

"Chores become light when darkness takes flight"
Mrs. Wilbert Stoltenberg
R.F.D. #1
Walcott, Iowa

"And the convenience would cost just a mite"
Mrs. James Watson, Jr.
R.F.D. 1
Charles Town, W. Va.

"'Twould save his temper, time, and sight"
Mrs. Ruth C. DePue
Fort Seybert, W. Va.

"He'd find Watts a good watchman all night"
Mrs. Stanley Wagner
R.F.D. 1
Riegelsville, Pennsylvania

Honorable Mention

Georgia Mae Aase, Gilbert, Minnesota; Mrs. Elizabeth Bland, Baraboo, Wisconsin; Mrs. Claudia C. Carr, Parkersburg, W. Va.; D. Mame Frederick, Wapato, Washington; Linda Grosier, Neosho, Wisconsin; J. Leon Grieve, Gooding, Idaho; Mrs. Ray H. Harkless, W. Middlesex, Pennsylvania; Mrs. Sumner A. Hearn, No. Saco, Maine; Mrs. Kenneth Heistand, Baxter Springs, Kansas; Gladys Kelln, Govan, Sask., Canada; Dixie Nevada Larson, Carbine, Utah; Allen J. Pelishek, Lena, Wisconsin; Mrs. William C. Raiter, Solway, Minnesota; Mrs. C. J. Rourke, Langdon, North Dakota; Anne Smith, Yukon, Oklahoma; Mrs. Golda Spencer, Forest, Ohio; Hazel Starrett, Bagley, Minnesota; Mrs. Joe Stiles, Noblesville, Indiana; Mrs. Jane Thompson, Atglen, Pennsylvania; Mrs. Henry P. Voll, North Freedom, Wisconsin; Mrs. Anna M. Wright, Frankton, Indiana.

The verse for this month's Rhyme Contest was furnished by one of our readers, Mrs. Henry P. Voll, R. 2, North Freedom, Wisc.

Here is a contest the whole family can enjoy. Cash Prizes awarded for a fifth line to complete the verse at the bottom of this page. Lots of fun and you may win $25 cash.

RULES—FEBRUARY CONTEST

Seven cash prizes will be awarded for the best last line to complete the verse in the coupon below. Your suggestion should rhyme with the second line.

The first prize will be $25; the second prize $10. In addition, five consolation prizes of $3 each will be awarded for the best line furnished.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

All members of the farm family to whom this magazine was sent may enter but each contestant may submit only one line.

Question "A" must be answered.

Entries must be sent to the Contest Editor, ELECTRICITY ON THE FARM Magazine, 8 So. Dearborn Street, Chicago 3, Ill. before March 5.

The decision of the judges is final and all entries become the property of ELECTRICITY ON THE FARM Magazine.

Winning names and entries will be announced in the May 1955 issue.

Send your entry on the coupon or make out a similar form on a plain sheet of paper or government postcard.

When winter winds whistle and roar
To hang clothes outside is a chore
No maid I might hire
Could compete with our dryer
? ? ? ? ? ? ? ?

My suggestion for a last line to the above verse is:

.....

(A) Describe briefly the most interesting and unusual application of electricity on your farm:

.....

.....

.....

.....

My name is.....

R.F.D..... Post Office.....

County..... State.....

for Junior Partners

National 4-H Winners

In Freezing, Canning, Clothing and Food Preparation

There are thrills and excitement in abundance for the 4-H members attending National 4-H Club Congress. For some of these young people there are extra thrills in being selected as national winners. In recognition for their outstanding achievements in their 4-H projects the national winners receive scholarships from the companies sponsoring the various award programs.

Celebrating the 10th anniversary of the frozen food award sponsored by International Harvester was an added feature for their six national winners. They were Sara Johnson 17, Culverton, Georgia; Barbara Jean Wenger 16, Powhattan, Kansas; Dolly M. Lawson 20, Frederick, Maryland; Evadene Sample 18, Spring Valley, Minnesota; Eleanor Sabey 18, Spanish Fork, Utah; and Janice Abey 17, Evansville, Wisconsin. Each one received a $300 scholarship.

Sara has done so much freezing that she has sometimes had to borrow space because of no room in their freezer. Barbara Jean has experimented with freezing of various types of fruits and has specialized in quickie meals. Dolly's achievements include preparing a meal in a short time from the freezer as well as experimenting with the freezing of various types of food. Evadene freezes most of the surplus material from their garden. She has also worked on packaging of baked goods. Assuming full responsibility of the home freezer was only one of Eleanor's duties. Saving money and time in the freezing of foods was the report from Janice. All of the girls have frozen large quantities of food, set up exhibits and given demonstrations.

Another food preservation method included in the awards program is canning achievement. Here again six national winners were honored with $300 scholarships by the Kerr Glass Manufacturing Co. These girls were Karen Floth, 18, Lodi, California; Marie Speyrer, 18, Lake Charles, Louisiana; Ann Marie Behling, 17, Weedsport, New York; Janet Boykin, 18, Wilson, North Carolina; Mary Jo Ellis, 17, Athens, Tennessee; and Janice West, 20, Neillsville, Wisconsin.

Karen has canned over 381 units of meat, fruits, and vegetables. She finds that canned goods have longer keeping qualities than other food preservation methods and that it pays to can only the best quality of food. Teaching her mother better methods of canning led to full responsibility of this program for Marie. She has canned 2,225 quarts of foods, increasing her output each year, Ann Marie now cans over 20 varieties of fruits and vegetables annually. For the last three years she has done all the family canning. Janet's achievements in canning have won for her the title of county senior and district senior winner for many years. Canning is only one of 14 projects that Mary Jo has been carrying. With all this she has canned over five thousand jars of food. Janice has not only an outstanding record in canning but has won awards for judging canned goods.

Selecting, constructing, and caring for their wardrobes won $300 scholarships for 12 clothing achievement national winners from Coats & Clark Inc. These

Karen Fladoes (center), home service director of Kelvinator Division, American Motors Corporation, discusses cooking with winners of food preparation scholarships. They are, left to right: Janice Paulick, Patricia Ann Mowdy, Sara Catherine Chestang, Wanda Keller, Ruth Temple, Lois Clark, Mary Janice Hillier and Gloria King.

L. W. Evans (center) advertising manager of Coats and Clark Inc., discusses threads with clothing achievement winners (l to r on floor): Martha Borgmann, Mary Wilson, Priscilla Waterman, (seated) Lois McClure, Evangeline Ortega, Loretta Hart, (standing) Eileene Mehl, Phyllis Schluesing, Carolina Kanning, Janice Cole, Marilyn Crowder and Otelia Westbrook.

4-H-ers were Martha Borgman, 16, Longmont, Colorado; Eileene Mehl, 20, Fonda, Iowa; Carolina Kanning, 18, Everest, Kansas; Lois McClure, 19, Symsonia, Kentucky; Mary Ellen Wilson, 18, Marriottsville, Maryland; Phyllis Schluesing, 19, Smithton, Missouri; Janice Cole, 18, Great Falls, Montana; Evangeline Ortega, 16, Chimayo, New Mexico; Marylin Crowder, 17, Fairfax, Oklahoma; Priscilla Anne Waterman, 16, Johnston, Rhode Island; Otelia Marie Westbrook, 19, Suffolk, Virginia; and Loretta Jane Hart, 21, West Hamblin, West Virginia.

All of these girls have made, remodeled and repaired many garments for themselves and their families. They also have outstanding records in assisting with the local program. Many have served as assistants or leaders of clubs. All have participated in many dress revues and have given demonstrations about their projects.

The food preparation award is based on the skills of planning, preparing, and serving meals. Eight girls received $300 scholarships as national winners in this program sponsored by Kelvinator Division, American Motors Corporation. They were Sara Catherine Chestang, 17, Bristol, Florida; Wanda E. Keller, 19, Middletown, Maryland; Mary Janice Hillier, 18, Excelsior, Minnesota; Patricia Ann Mowdy, 17, Decatur, Mississippi; Lois Clark, 20, Lockport, N. Y.; Ruth Temple, 18, Zebulon, North Carolina; Gloria King, 19, Rapid City, South Dakota and Janice Paulick, 18, Toole, Utah.

Frozen food winners test the cake commemorating International Harvester's 10th Anniversary of sponsoring the program. They are, left to right: Sara Johnson, Barbara Jean Wenger, Janice Abey, Evadene Sample, Eleanor Sabey and Dolly Lawson.

Complete charge of the kitchen and working on a minimum grocery bill is an accomplishment of Sara Catherine. Wanda likes to plan special parties and picnics and has packed 300 lunches. She also has charge of the kitchen when her mother is away, planning 3 meals a day for a hungry farm family. Mary Janice has become popular in the community for planning and assisting with the preparations of school banquets, smorgasbords, and church suppers. She uses her canning and freezing skill in preparing inexpensive and wholesome meals. The most important aspect of Patricia's project has been the cooking and household management during her mother's illness. Lois helps in the summertime to manage a snack bar which her parents own and part of the time pinch hits as a pie maker. She has also been active in helping to publicize the 4-H program by means of talks, news stories and radio programs. Not only does Ruth have full responsibility for the home cooking but she also is in charge of the canning and freezing. Gloria's aim is to be a dietician. To further her experience beyond the home field she served this last summer as assistant cook at a tourist lodge. Janice has helped by preparing many meals for her family and has also prepared food for several parties including a garden party for mothers.

These young people have worked hard to reach their goals and have won the recognition they received. Their experiences have done much to make them better homemakers of the future and outstanding leaders and citizens of our country.

Canning achievement winners are (left to right seated) Ann Marie Behling, Janet Boykin, Karen Floth, (standing) Mary Jo Ellis, Janice West and Marie Speyrer.

XUM

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No. 30

For 20 years a pace setter in the irrigation industry, Rain Bird has led the field in improved irrigation sprinklers. Continuous laboratory and in-the-field research assures the performance and reliability of all Rain Bird Sprinklers.

Invest in Rain Bird, the leader! Also, be sure the sprinkler system you get meets the American Society of Agricultural Engineers' standards and fits your requirements exactly.

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RAINY SPRINKLER SALES
609 WEST LAKE ST., PEORIA 5, ILLINOIS

Combination Shop Tool

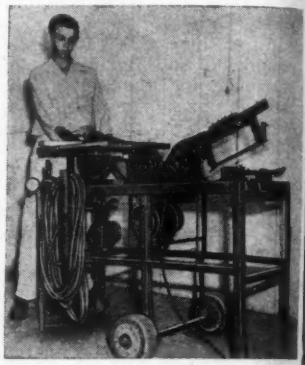
It is often desirable to have various electric power tools arranged so they are portable and can be moved to various locations in farm buildings as desired.

John Schneider of Clovis, a California rancher, built a unit that is portable and on which is arranged an electric hack saw, a grinder, a power saw, and a compressor which furnishes power for paint spraying.

All units are mounted on a two level frame work of angle iron. On the top level, at one end, is the hack saw. At the other end is the grinder. The grinding wheel can be removed and a power saw blade mounted in its place. A saw table can be slipped down over the top of the unit to a position where the circular blade comes through a sawing slot.

On the lower level of the table is the 1 hp electric motor that furnishes power to all units. Here also is the air compressor. The compressor pressure gauge and the hose for spray painting hang on a pipe rack at one corner of the table.

The table can be moved about on two wheels set under the center. There is a 1½ inch clearance for moving, the legs being that much shorter than the low side of the wheels. When in use the heavy weight of the equipment on the compressor end holds the table down in place at that end. The wheels and their axle are removable.



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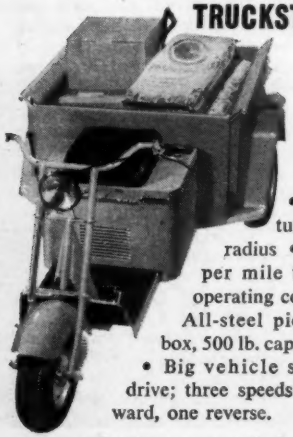

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See your nearest dealer for a FREE demonstration or write for illustrated literature.

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Book Review

Supplemental Irrigation for the Eastern United States. This book discusses where supplemental irrigation is advisable; how to plan, install, and operate a satisfactory system; and what to expect from it. The facts regarding supplemental irrigation are now well established, although not generally known, and will not change greatly. The discussion is a practical one suitable for those who have little previous knowledge of this subject. The following chapters are included: Favorable conditions necessary; sources and conveyance of water supply; methods of applying water to the land; surface irrigation; irrigation by sprinkling; water requirements; water and fertilizer team up for better yield; costs and profits; and various tables and designs for reference.

While the book gives general, immediate information, it is still advisable to consult irrigation and other experts before investing money in a system.

The author is Harry Rubey, Chairman, Civil Engineering Department, University of Missouri. The book is published by the Interstate Printers and Publishers, Danville, Ill. List price is $3.50.

The Cover

Among successful hog raisers, infra red lamps for providing warmth for the young litters are as common as dirt. Poultrymen everywhere have turned to infra red for brooding chicks. And these versatile lamps have provided warming rays for lambs, young calves, and even ponies. In view of all this it is quite easy to understand how the situation shown on our cover came about. It was taken on the Russel Dice farm at Connersville, Indiana. We hope you'll notice the contented look on that St. Bernard's face! As for the pups—all eight of them—the conditions are ideal. Snug quarters, a good bed, plenty of food, and—you guessed it—warmth from an infra red lamp.

The YEARS a woman subtracts from her OWN age are NOT lost. She JUST adds them to the ages of OTHER women . . . . One NICE thing about SILENCE is that it can't be repeated . . . . According to HUDSON NEWSLETTER an ADOLESCENT is a person who is well informed about ANYTHING he DOESN'T have to STUDY . . . . Jesse Livvin sez a man who gives in when he is RIGHT is WEAK, SPINELESS and PROBABLY married . . . . EVERSTOPTOTHINK?—a BACHELOR is a fellow who would rather be FREE than KNOT . . . . BANANA SKIN: a golden SLIPPER . . . . SODDEN THOUGHT: What a TERRIBLE noise you'd hear if everyone made as much racket when things go right as most folks do when things go wrong . . . . "Doctor," pleaded the meek little man to the psychiatrist, "I MUST talk to you about my wife. She's developed a terrific inferiority complex and I want to know what I can do to KEEP her that way." . . . . RUNNING into DEBT isn't NEARLY so upsetting as RUNNING into CREDITORS . . . . Many a guy has made the mistake of thinking the burden of marriage is MUCH LIGHTER when SHE'S a BLONDE . . . . TROUBLE teaches us AT LEAST two things—WHO our friends REALLY are—and THOSE who have been WAITING to catch us BENT OVER at the RIGHT angle . . . . SNICKERSCOOP-OF-THE-MONTH: A meek little man approached the millinery department of a large store. "I'd like," said he timidly, "to buy a large SATAN hat for my wife." "You MEAN SATIN," corrected the pretty salesgirl. "SATAN means something that looks like the devil." "Did you EVER see MY wife?" inquired the meek little man . . . . . Recently we attended a lecture on the subject of ANTIQUES. The speaker rambled on and on. "I have MANY antiques," bragged she, "EVEN an old PEWTER MUG." A bored voice from the back of the hall boomed: "You OUGHT to wear a VEIL!" . . . . PARTING THOUGHT: A CHAPERONE is an old maid who NEVER got on the first team but who still wants to intercept a few passes . . . .

Your pun-peddler—DUFFY.

Sheep Shearing Champion

Harold Hotinger, 20, a 4-H-er from Lexington, Virginia, won the National 4-H Sheep Shearing Contest at the International Livestock Exposition. Harold, who barely qualified for the finals, won the National Crown from 24 state champions and runners-up who competed for college scholarships and Saving Bonds. The contest was sponsored by Sunbeam Corporation.

His speed, technique, and quality of workmanship gave him top honors in the final contest. Finishing second was another Virginia 4-H-er Lawrence Crawford, 19, of Proffit. Randall

Cutlip, 20, Hillsboro, West Virginia, placed third. This was the first time that Lawrence had lost in competition to Harold although both had entered many state contests.

Irrigation Pays

That irrigation of tobacco crops is a paying proposition was proved last year on 42 farms in 19 counties in Kentucky. County agents in those counties reported that yields were increased on an average of 560 pounds per acre, and the selling price, 4 dollars per 100 pounds. The increased income from irrigated tobacco over non-irrigated was $347.78 an acre.

The length of the workday on farms, as well as the number of workers, has been gradually declining in recent years.

The average person is eating only half as much butter as before World War II.

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- Will never freeze when properly installed.
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The handle in this position shows at a glance that the water is positively shut off and is your guarantee against freezing and leakage.

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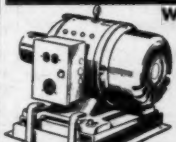
WITH YOUR TRACTOR



Why wait for a power failure. Protect your farm and family NOW with this low cost stand-by generator. Operates from tractor or gas engine, complete with approved safety switch.

LOWEST IN COST 20 YEAR WARRANTY

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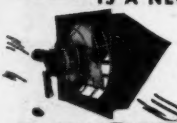
IS A NECESSITY IN



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- HEN HOUSES
- HOG HOUSES
- STOCK BARNS

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- Assure sweet pure milk, free of barn odors and insects.
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- Produce healthier fast growing hogs.
- Help to add weight to feeders.
- Keep your barns dry and comfortable.

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ELECTRICITY ON THE FARM
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Please have sent to me, without obligation, the names of manufacturers of:

.....

.....

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NAME.....

Post Office.....

R.F.D.....State.....

Automatic Feeders

. . . . . (Here from page 14)

equipment would be $160.

"If the equipment were used for four broods of chicks per year, the annual operating cost would be $13.16. This would make a total cost of $173.16 per year for equipment and operations."

The annual cost of using automatic feeders is even less than that, the report went on to explain, when you figure what you are saving by NOT using hand-feeding methods.

"The first cost of feeders for 5000 broilers where hand feeding is practiced, is approximately $350. The annual cost, allowing the same rates for depreciation, interest and repairs, would be $56 per year. The net annual cost of using the mechanical feeders therefore, would be $117.36," the report added.

At this point, the individual farmer need only add up what he considers a just hourly wage for himself to figure how much in dollar-hours he could save annually with a mechanical feeder.

But whatever the reason, or combination of reasons, it seems clear that the automatic poultry feeder is here to stay. Like the wider poultry house, which old-timers regarded with skepticism in its early days, it seems destined to play an expanded role in the nation's growing poultry economy.

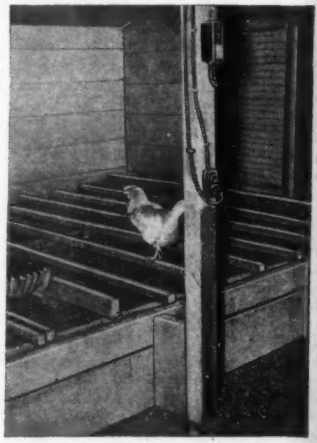
Positive Ventilation

. . . . . (Here from page 11)

air per minute must be moved for each hen if the hen is a light breed such as leghorn. Four feet is needed for medium and five feet for heavy breeds.

If you house 300 leghorns, you will need fans which can move 900 cubic feet of air per minute at one-eighth inch static pressure. It's better to select two fans which can move more than 900 cubic feet than less, if you can't hit it even. When operating on low volume, the smaller fan, then, will be removing about one-fourth of the 900 cubic feet of air each minute.

Another consideration in completing your ventilation system is the inlet openings. Fans exhaust air from the house to the outside. Inlets, therefore, provide a way for fresh air to enter the house. Study has shown that 24 square inches of opening are needed for each 100 cubic feet of fan capacity. This will provide adequate fresh air and still



The thermostat controlling the larger fan in a two-fan system should be properly located, preferably on an interior post and five feet from the floor. It should be in a representative temperature area, away from sun rays and not on outside wall.

maintain a slight vacuum in the house. In our above example, 216 square inches (9x24) of inlet are needed.

The continuous slot inlet has worked well in South Dakota. In this method, outside air is drawn in through loft louvres.

This slot setup prevents condensation of moisture on the inside walls, results in slightly warmed-up air being brought into the house and prevents direct drafts. Continuous operation of the smaller fan is necessary to prevent back-drafting.

The louvres in the gables, which allow original entrance of the fresh air into the loft, should have a total opening equal to or greater than the 24 square inches per 100 cubic feet per minute fan capacity.

The aim in poultry house ventilation is to supply the amount of fresh, moist-free air needed for the health and comfort of poultry. This results in better and cheaper production, healthier birds and less building deterioration.

Questions and Answers

Wood Saw for 2 hp Motor

▶**Question:** *I have a 2 hp motor that I would like to use to run a cutoff saw for sawing pole wood, etc. How large a saw would I be safe in operating with this motor? What would be the correct RPM to operate this saw?*

M. W. C., Miss.

▶**Answer:** Use a regular cord wood saw, preferably 24" in diameter. Run it at 1,000 RPM. As a dull saw wastes a lot of power, make sure the blade is sharp.

Meter Runs With Current Off

▶**Question:** *I wired a house about six months ago. Their electric bill seemed too high, and discovered the meter still registered after all lights were turned off. Have checked the wiring by disconnecting it at the entrance switch. The meter still runs after the wires to the house were disconnected. The electric supplier claims the trouble is in the wiring. Do you think it would be wise for me to check the wiring with the meter still registering when the circuit to the house is shut off?*

H. O. S., W. Va.

Answer: If in cutting off the wires to the house as explained in your letter you cut off all the circuits from the meter, then the meter should stop running. If, on the other hand, you still have the milk house or barn, or yardlight, or some other building connected to the meter after you disconnected the house circuit, then it is quite possible that you have an electric clock running or some other device which uses current or that you have some leakage in the wiring.

If there is any chance for leakage in your wiring you should, by all means, have it checked for your own safety as well as to prevent loss of current.

"It's a little idea of mine to keep them warm while I take time off for lunch!"

Electric Heat for Mushrooms

▶**Question:** *I am planning to grow mushrooms in my basement, and would like what information you could give me on their culture and as to how would be best to make the bed.*

Could a box be made with soil heating cable at the bottom to maintain the proper soil temperature and if so, where should the thermostat be placed? Would the soil heating cable warm the air in the box enough for growth during the winter or would some other means have to be provided for maintaining air temperature?

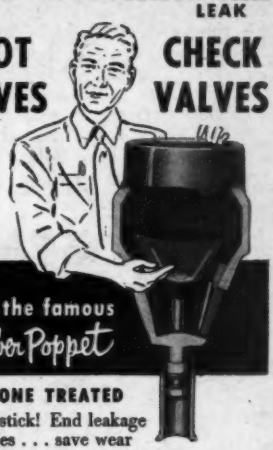
S. T. P., Ill.

▶**Answer:** We have no information we can send you on mushroom culture. You can get some very good information on that subject, however, by writing to the Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

Growing mushrooms is rather a tricky business. It is desirable to hold the house at a uniform temperature. That is why mushrooms are grown in caves or in insulated mushroom houses. It is also necessary to keep a high humidity. If your basement is damp and down in the ground

Strataflo..... CAN'T LEAK

FOOT VALVES CHECK VALVES



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OPTIONAL ANTI-FREEZE PROTECTION

Both Only $11.20

so things do not freeze in it, I think you could grow mushrooms successfully by using soil heating cable in the beds. The cable should be placed at the bottom of the bed just as if you were making a hotbed, except that you use compost above the cable instead of soil. You have to be careful about keeping the compost moist, for if it dries out the mushroom spores will not develop. You could use covered beds to hold a high humidity. The soil heating cable would provide plenty of air heat.

You must keep the temperature down fairly low to get good sound firm mushrooms. If the temperature is too high, the mushrooms get soft and spindly.

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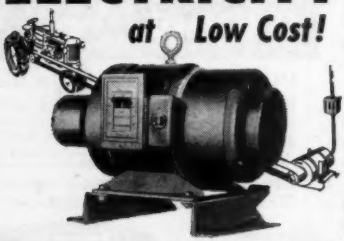

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Control of Cannibalism

▶**Question:** *I raise some chicks and find that I lose many because they eat themselves. Will trimming the beak help to stop this? How is it done?*

J. B. C., La.

▶**Answer:** Trimming the beak is a practical way of controlling cannibalism. It is usually done with an electrically heated blade which is used to cut off the end of the bird's upper beak. Because of the heat, the cut is seared as it is made and no bleeding follows.

The occurrence of cannibalism is less frequent if the pens are not over-crowded. There should be 3 to 4 sq. ft. of floor area per bird. Dark laying nests will also help to keep this trait from developing.

Water Hammer

▶**Question:** *I am writing to ask if you know of any method of eliminating water knock and hammer on a water line. A pressure tank in the basement supplies water to a stool drinking cup at a distance of about 450 ft. When the cup is in use it causes a bad hammer in the lines in the basement. The pressure is the standard 20 to 40 lb.*

I installed two water hammer eliminators in the line near the cup, but with little if any result. There are several right angle turns in the water line, which one would think might eliminate this trouble. I heard of somebody who put a rubber connection at some point in his line to stop the hammer. Can you give me any information along this line? The pipe is ¾ in.

J. L. H., W. Va.

▶**Answer:** We suggest that you install one of the water hammer eliminators in the basement in the pipe which leads out to the barn. In other words, get the water hammer elimniator as near to the place where the noise occurs as possible. If this gives some relief, it might be well to place both eliminators in the basement.

Sometimes animals keep nosing or bumping drinking cups so there is a sound carried through the pipe which is not water hammer. I doubt if this is your difficulty, but if it should be, a section of rubber hose placed in the pipe from the barn might correct the difficulty.

Better open the eliminator and examine to be sure the diaphragm has not been ruptured.

Power of 1725 and 3450 Motors

▶**Question:** *If a ½ hp electric motor running at 3450 rpm, equipped with a 4 in. pulley will run a spindle shaper with a 2 in. pulley, will a 1725 rpm, ½ hp motor run that same shaper at the same speed with an 8 in. pulley and have as much power as the higher speed motor.*

J. T. W., Wis.

▶**Answer:** Your 1725 rpm ½ hp motor with 8" pulley will drive your spindle at the same speed and with the same amount of power as your ½ hp 3450 rpm motor equipped with a 4" pulley.

If the motors are not of the same type, that is, not both split phase, or both capacitor, or both repulsion induction type, there might be some difference in the amount of load they will start. When they are running at full speed, however, they will deliver the same amount of power.

Hot Potatoes Help in Raising Roses

Every time new roses are planted at the J. F. Wilcox & Sons nursery at Council Bluffs, Iowa, the soil is sterilized. This is done by "cooking" the soil with steam pipes. The Wilcoxes bury a potato in each square foot of soil, and when the potatoes are "baked" the soil has been sterilized.

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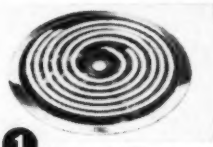
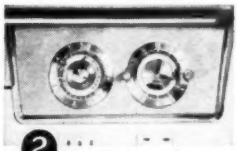
**Guaranteed by Good Housekeeping*

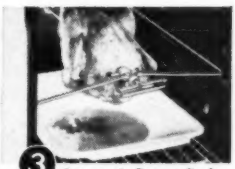
**Dealers are listed in most classified phone directories.*



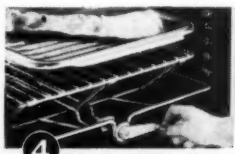
1 Fastest Cooking Ever! Exclusive new *Super-SPEED* Calrod® unit heats *instantly* . . . for fastest cooking in history!



2 New Mealtimer lets you cook *every* way automatically! Controls ovens, broilers, barbecue, surface unit, Thrift Cooker.



3 Automatic Rotary Barbecue! Just plug in to barbecue chickens, ribs, roasts *automatically!* Extra-large capacity.



4 New Handi-Raise Broiler raises and lowers at the mere turn of a crank for charcoal-like professional broiling.

5 Automatic Griddle! Plugs in. Thermostatic control gives even all-over heat. Large size. Stores away when not in use.

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